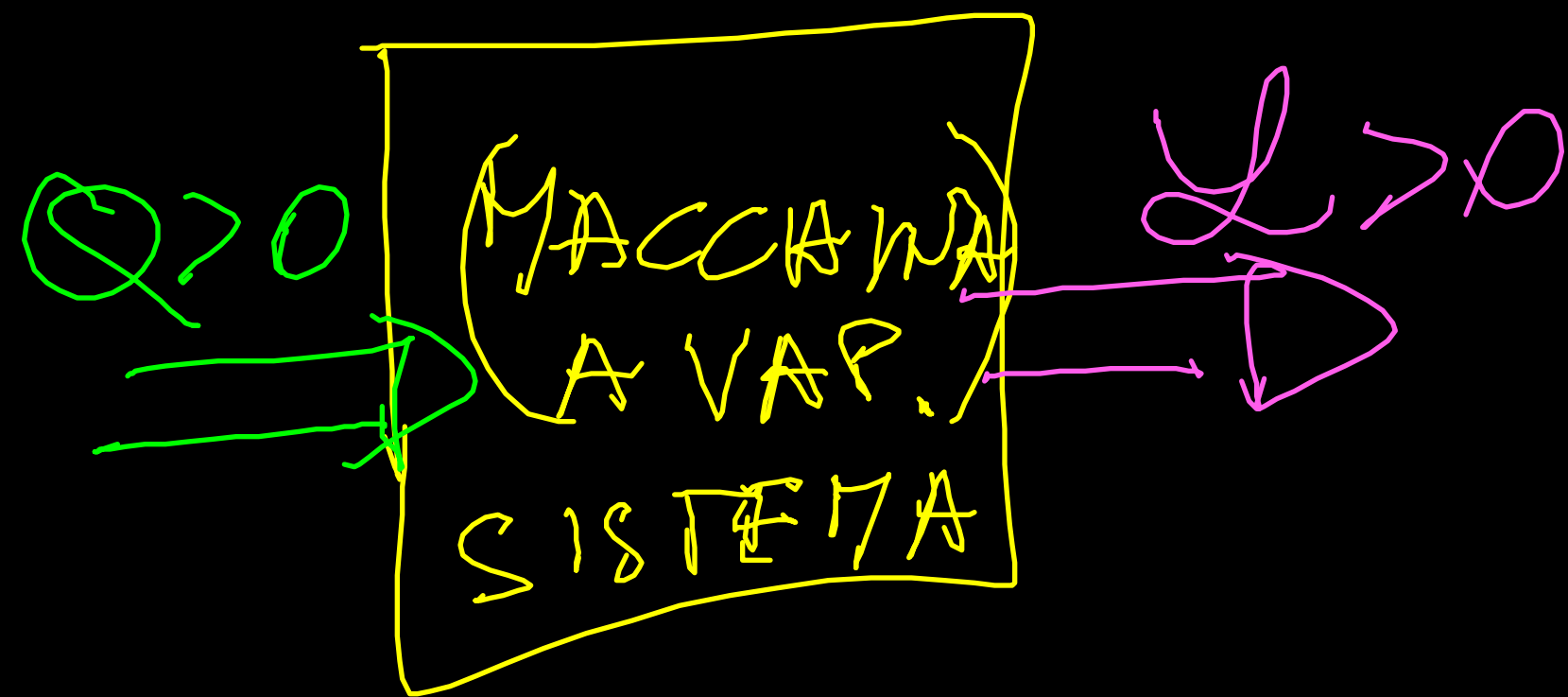
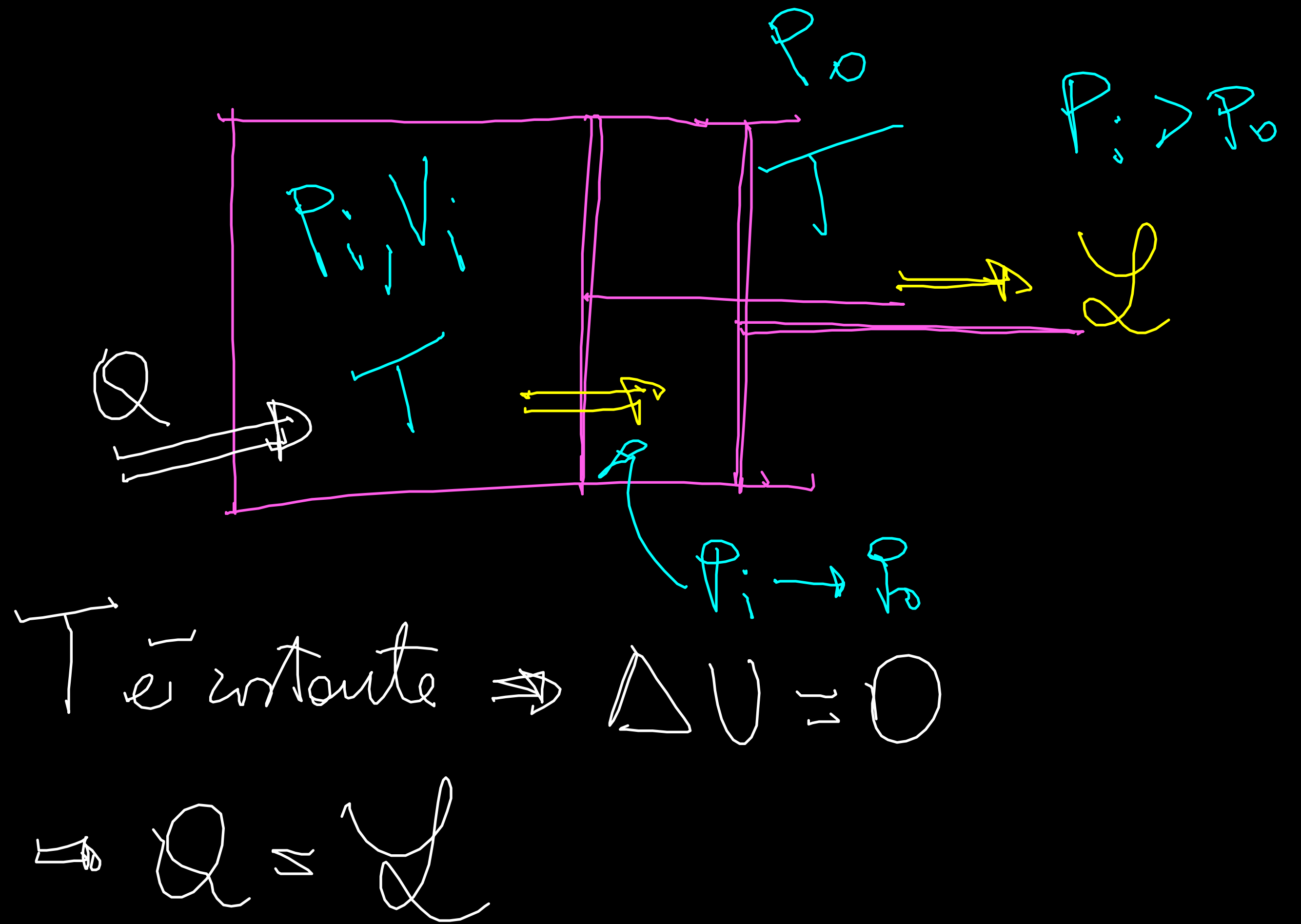


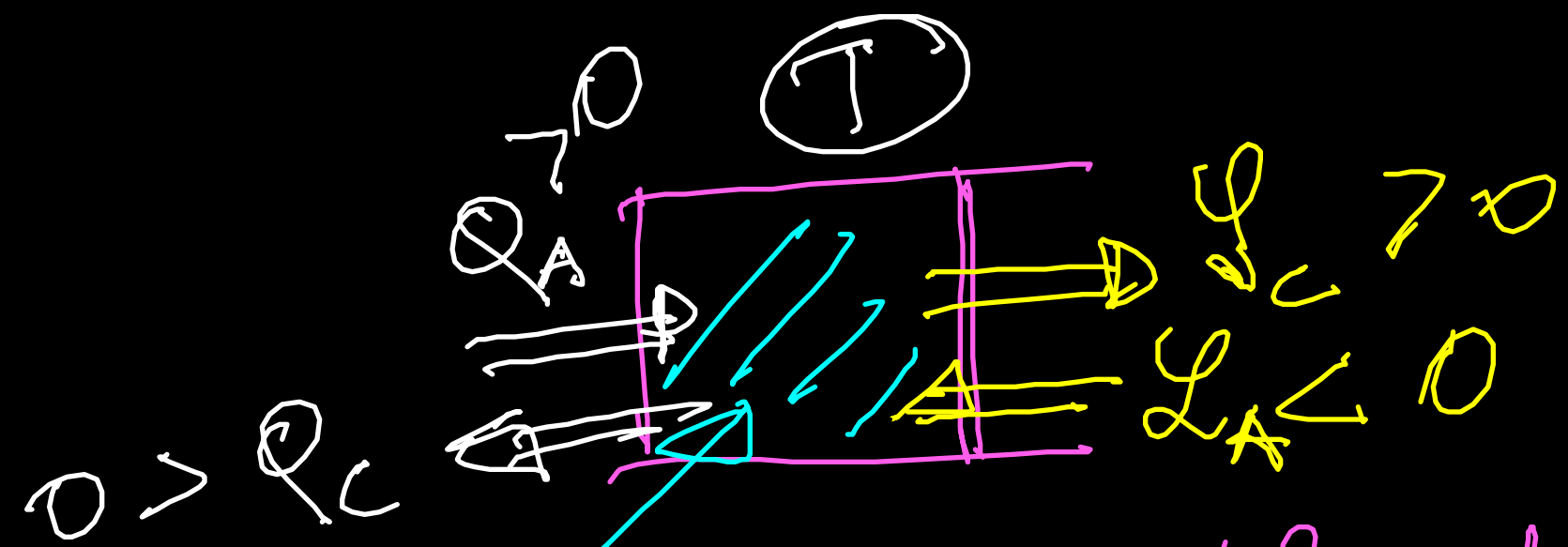
# MACCHINE TERMICHE



$$\Delta U = Q - L$$



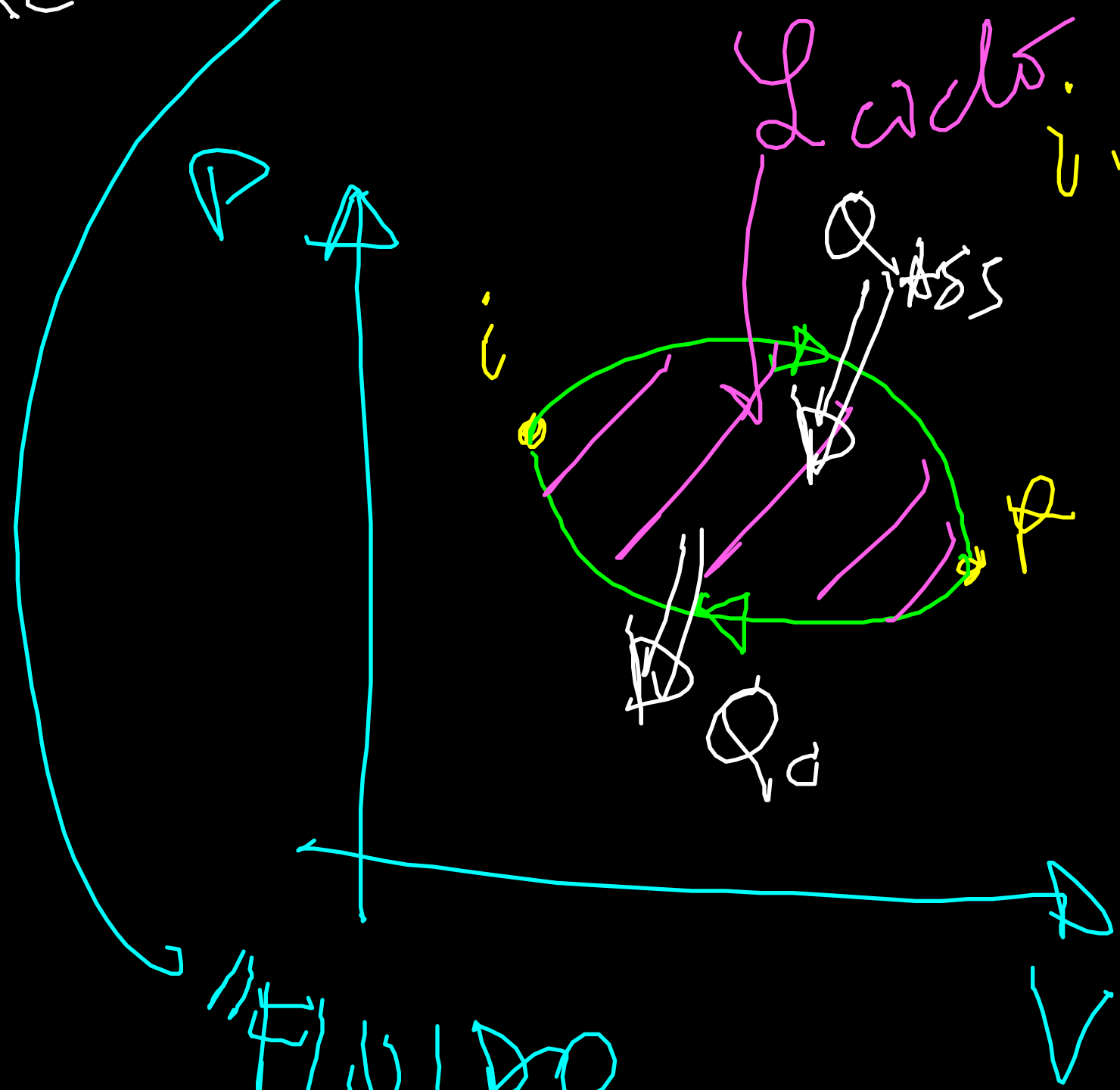
# MACCHINA TERMICA CICLICA



$$\Delta U = 0 \quad (\text{CICLO})$$

$$Q_{\text{ciclo}} = L_{\text{ciclo}}$$

$$\Rightarrow Q_A + Q_C$$



$i \rightarrow f$  ESP  
 $L_{i \rightarrow f} > 0$

$f \rightarrow i$  COMPR.

$L_{f \rightarrow i} < 0$

$$L = L_{i \rightarrow f} + L_{f \rightarrow i} > 0$$

FLUIDO  
 DI LAVORO  
 = SISTEMA

# ESEMPIO QUALITATIVO

$$\Delta U = 0$$

$$Q_C + Q_A = L$$

